

**Remarks/Arguments**

The Applicants respectfully request further examination and reconsideration in view of the above amendments and arguments set forth fully below. Claims 1, 8-27, 29-33, 35-130, and 132 were pending. Claims 9, 11, 15, 18, 20-27, 33, 35-37, 39, 42, 43, 45-127 are withdrawn from consideration. Within the Office Action, Claims 1, 8, 10, 12-14, 16, 17, 19, 29-32, 38, 40, 41, 44, 128-130 and 132 are rejected. By the above amendments, Claims 1, 129, and 132 are amended. No new matter has been added. Accordingly, Claims 1, 8, 10, 12-14, 16, 17, 19, 29-32, 38, 40, 41, 44, 128-130 and 132 are currently pending.

**Request for Withdrawal of Finality**

The Office Action states, on page 23, “Applicant’s amendment necessitated the new ground(s) of rejection presented in this Office action.” The Applicants respectfully disagree.

The claim amendments made in the previous response filed on November 9, 2010 were to simply delete the word “set” from the claims, because the Examiner had stated in the previous Office Action mailed on September 8, 2010, that a “set” is defined as “a group of things of the same kind that belong together and/or are used together” and was confused as to how can “one finger be a set.” Though the Applicants respectfully disagreed (and still disagree), the Applicants removed the word “set” from the claims, while retaining the element of “one or more fingers” in the claims.

Although the scope of the claims did not change based on the previous claim amendments, within the present Office Action, the Examiner provides additional characterization of Gruber’s inlet port and the cylindrical channel below it, because the Examiner did not in the previous Office Action provide an explanation as to how Gruber teaches an inlet port that directs fluid *first from* an inlet channel and *then from* the inlet channel *to* the first/second of one or more fingers.

For at least these reasons, the Applicants respectfully submit that the finality of the present Office Action is improper since the Applicants’ previous claim amendments did not necessitate the new ground(s) of rejection presented in this present Office Action since the scope of the claims did not change. Accordingly, in view of the foregoing, the Applicants respectfully request withdrawal of the finality of the present Office Action.

**Claim Rejections Under 35 U.S.C. §112**

Although it is stated within the Office Action that Claims 1, 8, 10, 12-14, 16, 17, 19, 29-32, 38, 40, 41, 44, 128-130, and 132 are rejected under 35 U.S.C. §112, second paragraph, it appears to the Applicants that only Claim 132 is currently rejected under 35 U.S.C. §112, second paragraph, because the Examiner states, on page 3, that “[t]he issue of whether or not a ‘set’ can contain only one member as opposed to multiple members is now moot and that aspect of the 35 USC 112, second paragraph, rejection is withdrawn.” However, in regards to Claim 132, the Examiner maintains that “the recitation in claim 132 that at least one inlet port, inlet channel and the first set, the second set, or both sets of fingers are ‘substantially in a plane’ appears to be mis-descriptive. All of these structures are three dimensional and hence, by definition cannot be ‘substantially in a plane.’ The term ‘substantially in a plane’ in claim 132 is a relative term which renders the claim indefinite.” Although the Applicants respectfully disagree, to further prosecution, the Applicants have amended Claim 132 to recite “wherein the at least one inlet port, the inlet channel and the first of one or more fingers, the second of one or more fingers, or both lie in a common plane.” Accordingly, the issue of “substantially in a plane” is now moot. The Applicants respectfully request withdrawal of these rejections under 35 U.S.C. §112.

**Claim Rejections Under 35 U.S.C. §103**

Within the Office Action, Claims 1, 8, 10, 12-14, 17, 19, 32, 38, 40, 128-130 and 132 are rejected under 35 U.S.C. §103(a) as obvious over the combined teachings of U.S. Patent No. 5,388,635 to Gruber et al. (hereinafter “Gruber”) and U.S. Patent No. 5,761,037 to Anderson et al. (hereinafter “Anderson”). The Applicants respectfully disagree.

Independent Claim 1 recites a heat exchanger comprising: a body having a conducting portion configured to be configured to conduct heat from the heat source to a heat exchanging layer configured within the body, the body including at least one inlet port and at least one outlet port, wherein the at least one inlet port directs fluid from an inlet channel coupled to the at least one inlet port to a first of one or more fingers, a second of one or more fingers, or both of the first and the second of one or more fingers, wherein the first of the one or more fingers branch from the inlet channel, wherein the second of the one or more fingers branch from the inlet channel, so that the fluid is able to flow from the first of the one or more fingers to the second of the one or more fingers to the heat exchanging layer via an intermediate layer with a plurality of conduits which extend therethrough, wherein at least a portion of one of the first of the one or more fingers is nonparallel to a portion of at least one of the second of the one or more fingers, the heat

exchanging layer includes a porous microstructure disposed thereon and is configured to distribute the fluid and to pass the distributed fluid therethrough

Gruber is cited for teaching “the at least one inlet port directs fluid from an inlet channel coupled to the at least one inlet port to a first of one or more fingers, a second of one or more fingers, or both of the first and the second of one or more fingers, wherein the first of the one or more fingers branch from the inlet channel, wherein the second of the one or more fingers branch from the inlet channel.” In particular, the Examiner characterizes the topmost finger 30 shown in Figure 8B of Gruber as the first of one or more fingers, and the bottommost finger 30 shown in Figure 8B of Gruber as the second of one or more fingers. Based on this characterization, Gruber does not teach that *fluid is able to flow from the first of the one or more fingers to the second of the one or more fingers to the heat exchanging layer*. Instead, fluid in Gruber simply flows to all the fingers 30 simultaneously.

Although Anderson is cited for teaching other claim elements, Anderson also does not teach the claim elements discussed above.

Since the cited prior references do not render obvious all of the elements of independent Claim 1, the Applicants respectfully submit that independent Claim 1 is patentable over the prior art references.

Claims 8, 10, 12-14, 17, 19, 32, 38, 40, 128-130 and 132 are dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claims 8, 10, 12-14, 17, 19, 32, 38, 40, 128-130 and 132 are all also allowable as being dependent upon an allowable base claim.

Furthermore, in regards to Claim 8, the Applicants respectfully submit that neither Gruber nor Anderson teach that *the at least one inlet port is positioned substantially parallel with respect to the plane*. For at least these reasons, Claim 8 is an allowable claim.

Within the Office Action, Claims 1, 8, 10, 12-14, 17, 19, 32, 38, 40, 128-130 and 132 are rejected under 35 U.S.C. §103(a) as obvious over the combined teachings of Gruber and Anderson and U.S. Patent No. 3,993,123 to Chu et al. (hereinafter “Chu”) or U.S. Patent No. 5,978,220 to Frey et al. (hereinafter “Frey”). The Applicants respectfully disagree.

As described above, neither Gruber, Anderson nor their combination teach that *fluid is able to flow from the first of the one or more fingers to the second of the one or more fingers to the heat exchanging layer*. Further, Chu and Frey do not teach this claim element. For at least these reasons, independent Claim 1 is allowable over the teachings of Gruber, Anderson, Chu, Frey and their combination.

Claims 8, 10, 12-14, 17, 19, 32, 38, 40, 128-130 and 132 are dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claims 8, 10, 12-14, 17, 19, 32, 38, 40, 128-130 and 132 are all also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 1, 8, 10, 12-14, 17, 19, 32, 38, 40, 128-130 and 132 are rejected under 35 U.S.C. §103(a) as obvious over the combined teachings of Gruber/Anderson or Gruber/Anderson/Chu/Frey as applied to claims 1, 8, 10, 12-14, 17, 19, 32, 38, 40, and 128-132 above and further in view of either U.S. Patent No. 5,983,997 to Hou et al. (hereinafter “Hou”) or U.S. Patent No. 5,239,200 to Messina et al. (hereinafter “Messina”). The Applicants respectfully disagree.

As described above, neither Gruber, Anderson, Chu, Frey nor their combination teach that *fluid is able to flow from the first of the one or more fingers to the second of the one or more fingers to the heat exchanging layer*. Further, Hou and Messina do not teach this claim element. For at least these reasons, independent Claim 1 is allowable over the teachings of Gruber, Anderson, Chu, Frey, Hou, Messina and their combination.

Claims 8, 10, 12-14, 17, 19, 32, 38, 40, 128-130 and 132 are dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claims 8, 10, 12-14, 17, 19, 32, 38, 40, 128-130 and 132 are all also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claim 16 is rejected under 35 U.S.C. §103(a) as being unpatentable over the combined teachings of Gruber/Anderson alone or Gruber/Anderson/Chu/Frey alone or in view of Hou or Messina as applied to claim 1 above, and further in view of U.S. Patent No. 4,758,926 to Herrell et al. (hereinafter “Herrell”). The Applicants respectfully disagree.

Claim 16 is dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claim 16 is also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 29-32 are rejected under 35 U.S.C. §103(a) as being unpatentable over the combined teachings of Gruber/Anderson alone or Gruber/Anderson/Chu/Frey alone or in view of Hou or Messina as applied to claim 1 above, and further in view of U.S. Patent No. 6,680,044 to Tonkovich et al. (hereinafter “Tonkovich”). The Applicants respectfully disagree.

Claims 29-32 are dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claims 29-32 are also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 1, 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130 and 132 are rejected under 35 U.S.C. §103(a) as obvious over the combined teachings of Gruber in view of the Jiang et al. article “Thermal-Hydraulic performance of small scale micro-channel and porous-media heat exchangers” (hereinafter “Jiang”). The Applicants respectfully disagree.

As described above, Gruber does not teach that *fluid is able to flow from the first of the one or more fingers to the second of the one or more fingers to the heat exchanging layer*. Further, Jiang does not teach this claim element. For at least these reasons, independent Claim 1 is allowable over the teachings of Gruber, Jiang and their combination.

Claims 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130, and 132 are dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claims 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130, and 132 are all also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 1, 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130 and 132 are rejected under 35 U.S.C. §103(a) as obvious over the combined teachings of Gruber in view of the Jiang and Chu or Frey. The Applicants respectfully disagree.

As described above, neither Gruber, Jiang, Chu, Frey nor their combination teach that *fluid is able to flow from the first of the one or more fingers to the second of the one or more fingers to the heat exchanging layer*. For at least these reasons, independent Claim 1 is allowable over the teachings of Gruber, Jiang, Chu, Frey and their combination.

Claims 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130, and 132 are dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claims 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130, and 132 are all also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 1, 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130 and 132 are rejected under 35 U.S.C. §103(a) as obvious over the combined teachings of Gruber in view of the U.S. Patent No. 4,896,719 to O'Neill et al. (hereinafter “O'Neill”) and U.S. Patent No. 6,680,044 to Tonkovich (hereinafter “Tonkovich”). The Applicants respectfully disagree.

As described above, Gruber does not teach that *fluid is able to flow from the first of the one or more fingers to the second of the one or more fingers to the heat exchanging layer.* Further, O'Neill and Tonkovich do not teach this claim element. For at least these reasons, independent Claim 1 is allowable over the teachings of Gruber, O'Neill, Tonkovich and their combination.

Claims 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130, and 132 are dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claims 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130, and 132 are all also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 1, 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130, and 132 are rejected under 35 U.S.C. §103(a) as obvious over the combined teachings of Gruber in view of O'Neill and Tonkovich, and Chu or Frey. The Applicants respectfully disagree.

As described above, neither Gruber, O'Neill, Tonkovich, Chu, Frey nor their combination teach that *fluid is able to flow from the first of the one or more fingers to the second of the one or more fingers to the heat exchanging layer.* For at least these reasons, independent Claim 1 is allowable over the teachings of Gruber, O'Neill, Tonkovich, Chu, Frey and their combination.

Claims 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130, and 132 are dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claims 8, 10, 12-14, 17, 19, 29-32, 38, 40, 128-130, and 132 are all also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 41 and 44 are rejected under 35 U.S.C. §103(a) as obvious over any of the prior art references as applied to Claim 1 above, and further in view of U.S. Patent No. 5,918,469 to Cardella (hereinafter "Cardella") or WO 01/25711 A1. The Applicants respectfully disagree.

Claims 41 and 44 are dependent on independent Claim 1. Since independent Claim 1 is an allowable base claim, Claims 41 and 44 are both also allowable as being dependent upon an allowable base claim.

Applicants' responses that are applicable to all prior Office Actions are all herein incorporated by reference.

**Conclusion**

For the reasons given above, the Applicants respectfully submits that the claims are in a condition for allowance, and allowance at an early date would be appreciated. If the Examiner has any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,  
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